

Rocky Flats Environmental Technology Site

RECONNAISANCE LEVEL CHARACTERIZATION REPORT (RLCR)/PRE-DEMOLITION SURVEY REPORT (PDSR)

Tent 15 (Barn Tent) Closure Project

REVISION 0

April 14, 2005

Change Control:

- Rev 1. Revised Section 3, added discussion about Class 3 designation 5/2/05.
- Rev 1. Revised Section 3, added discussion about TSA and scan results 5/2/05.
- Rev 1. Revised Section 6, fixed typo "Attachment E"- 5/2/05.
- Rev 1. Revised Section 4.3, added discussion about asphalt pad and hazardous waste determination -5/2/05.
- Rev 1. Revised Attachment C, survey unit data summary instrument sheet MDC for all scan instruments to 300 dpm/100cm2 5/2/05.
- Rev 1. Revised Attachment E, added discussion about the contaminated sludge mixing equipment 5/4/05.
- Rev 1. Revised Attachment E, Table E-1, added discussion about the waste characterization survey MDAs 5/4/05.
- Rev 1. Revised Section 4.3, added discussion about closure of the RCRA Unit 5/4/05.

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RECONNAISANCE LEVEL CHARACTERIZATION REPORT (RLCR)/PRE-DEMOLITION SURVEY REPORT (PDSR)

Tent 15 (Barn Tent) Closure Project

REVISION 0

April 14, 2005

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ABBREVIATIONS/ACRONYMS

ACM Asbestos Containing Material

Be Beryllium

CDPHE Colorado Department of Public Health and the Environment

DCGL_{EMC} Derived Concentration Guideline Level – elevated measurement comparison

DCGLw Derived Concentration Guideline Level – Wilcoxon Rank Sum Test

D&D Decontamination and Decommissioning

DDCP Decontamination and Decommissioning Characterization Protocol

DOE U.S. Department of Energy
DPP Decommissioning Program Plan

DQA Data quality assessment DQOs Data quality objectives

EPA U.S. Environmental Protection Agency
FDPM Facility Disposition Program Manual
HVAC Heating, ventilation, air conditioning
HSAR Historical Site Assessment Report
HEUN Highly Enriched Uranyl Nitrate
IHSS Individual Hazardous Substance Site
IWCP Integrated Work Control Package

K-H Kaiser-Hill
LBP Lead-based paint
LLW Low-level waste

MARSSIM Multi-Agency Radiation Survey and Site Investigation Manual

MDA Minimum detectable activity
MDC Minimum detectable concentration
NORM Naturally occurring radioactive material

NRA Non-Rad-Added Verification

OSHA Occupational Safety and Health Administration

PARCC Precision, accuracy, representativeness, comparability and completeness

PCBs Polychlorinated Biphenyls
PDS Pre-demolition survey

QC Quality Control

RCRA Resource Conservation and Recovery Act

RFCA Rocky Flats Cleanup Agreement

RFETS Rocky Flats Environmental Technology Site

RFFO Rocky Flats Field Office

RLC Reconnaissance Level Characterization

RLCR Reconnaissance Level Characterization Report

RSA Removable Surface Activity
RSP Radiological Safety Practices
SVOCs Semi-volatile organic compounds

TCLP Toxicity Characteristic Leaching Procedure

TSA Total surface activity

VOCs Volatile organic compounds

EXECUTIVE SUMMARY

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Tent 15 (a.k.a. Barn Tent). Because this Type 2 structure will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Structure surfaces characterized as part of this PDS included the tent fabric and metal structure supports comprising the pad, walls, ceiling, and roof. The asphalt pad beneath the tent was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process, and all results were less than the unrestricted release criteria and are included in this PDSR. Environmental media beneath and surrounding the structure was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

The PDS encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report for the Area 5-Group 13 Facilities, dated December 2002, Revision 0. in the facility-specific Historical Site Assessment Report

Results indicate that no radiological, beryllium, asbestos or PCB contamination exists in excess of the PDSP unrestricted release limits. Sampling and analysis for RCRA/CERCLA constituents have been conducted as part of the RCRA closure process. The results of this sampling effort demonstrated that the tent structure is not a regulated hazardous waste, and is suitable for disposal at a sanitary landfill. However, the asphalt pad has not undergone RCRA closure and will be managed as hazardous waste.

Based on the analysis of radiological, chemical and physical hazards, Tent 15 is classified as RFCA Type 2 structures pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) due the hazardous waste asphalt pad underneath the tent. Tent 15 (Barn Tent) can be demolished and the waste managed as sanitary waste. The asphalt pad will be managed as hazardous waste. The sludge mixing drums will be managed as Low-Level Mixed Waste (LLMW) during the demolition of the tent and appropriate controls will be incorporated into the demolition work packages to control these hazards during demolition. To ensure that the facility remains free of contamination and that PDS data remain valid, Level 2 isolation controls have been established and the areas posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) and a Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Tent 15 (Barn Tent). Because this Type 2 structure will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as a part of this PDS included the pad, walls, ceiling and roof. The asphalt pad beneath the tent was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process, and all results were less than the unrestricted release criteria and are included in this PDSR. The sludge mixing drums will be managed as Low-Level Mixed Waste (LLMW) during the demolition of the tent and appropriate controls will be incorporated into the demolition work packages to control these hazards during demolition. Environmental media beneath and surrounding the facility were not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

Tent 15 was an "anticipated" Type 2 RFCA facility prior to the performance of this RLC/PDS effort. A Type 2 RLC had not yet been performed in this building because the tent had been in operation until recently, thus the majority of the tent surfaces were inaccessible for characterization. Since the performance of this RLC/PDS effort was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP), no further characterization of this structure is necessary.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these is Tent 15 (Barn Tent). The location of these structures is shown in Attachment A, Facility Location Map. This structure no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 2 structure can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for Tent 15 (Barn Tent). The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report for the Area 5-Group 13 Facilities, dated December 2002, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the Tent 15 (Barn Tent) PDS effort. A PDS is performed prior to building demolition to define the final radiological and chemical conditions of a facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the final radiological and chemical conditions of the Tent 15 (Barn Tent) structure. Environmental media beneath and surrounding the structure are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs. Radiological survey Data Quality Objectives (DQOs) for the asphault pad and the sludge mixing equipment were met by following Radiological Safety Practice procedures 3-PRO-165-07.02, Contamination Monitoring Requirements, and PRO-267-RSP-09.05, Radiological Characterization for Surface Contaminated Objects.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Historical Site Assessment Report (HSAR) for the Area 5-Group 13 Facilities, dated December 2002, Revision 0, was conducted to understand the facility history and related hazards. The assessment consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. In summary, the HSAR identified a low potential for radiological, chemical, beryllium or asbestos hazards. Refer to Attachment B, *Historical Site Assessment Report*, for a copy of the Tent 15 HSAR. In summary, the HSAR identified a low potential for radiological, chemical, beryllium or asbestos hazards.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Tent 15 (Barn Tent) was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the structure surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, structure walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements [refer to the RISS Characterization Project files for the Tent 15 (Barn Tent) Radiological Characterization Plan]. One *Class 3* radiological survey unit package was developed for Tent 15 (Barn Tent): 750T15 (interior and exterior). A Class 3 designation was chosen since this survey unit has a low potential for contamination. Individual radiological survey unit packages are maintained in the RISS Characterization Project files.

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Tent 15 (Barn Tent) survey unit package was developed in accordance with Radiological Safety Practices (RSP) 16.01, Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 Radiological Surveys of Surfaces and Structures. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, Radiological Survey/Sample Data Analysis. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, Radiological Survey/Sample Quality Control.

Rev.

A total of 27 total surface activity (TSA) measurements (15 random, 10 biased and 2 QC) and 25 removable surface activity (RSA) measurements (15 random and 10 biased) were taken and scan surveys performed. A minimum alpha scan survey of 10% of all interior and exterior surfaces (211 m² minimum) at biased locations and 100% of the accessible areas of the asphalt pad beneath the tent was performed. None of the measurements or scans indicated elevated activity above applicable DCGL values. The asphalt pad results will be reported as part of survey unit 750PAD. The exterior surfaces of the sludge mixing equipment located inside the tent were radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process and all removable WRE survey results were less than the unrestricted release criteria. The sludge mixing drums will be managed as LLMW during the demolition of the tent and appropriate controls will be incorporated into the demolition work packages to control these hazards during demolition. All other sludge mixing equipment met the unrestricted release criteria.

Radiological survey data, statistical analysis results, survey locations, asphalt pad and sludge mixing equipment WRE surveys, and radiological scan maps are presented in Attachment C, Radiological Data Summary and Survey Maps. Isolation control postings are displayed on the tent entrances to ensure no radioactive materials are introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Tent 15 (Barn Tent) was characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in the structures. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. The contaminants of concern were asbestos, beryllium, RCRA/CERCLA, lead and PCBs. Refer to Attachment D, Chemical Summary Data and Sample Maps, for details on sample results and sample locations. Isolation control postings are displayed on affected structures to ensure no hazardous materials are introduced.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in Tent 15. A CDPHE-certified asbestos inspector conducted the inspection and no asbestos containing building materials was identified that required sampling. On this basis, asbestos sampling was not conducted as part of this PDS.

4.2 Beryllium

Based on the HSAR, Interview Checklists, and the Known Beryllium Area list, there was not adequate historical or process knowledge to conclude that beryllium was not present in Tent 15. Consequently, random and biased beryllium sampling was conducted in Tent 15 in accordance with PRO-536-BCPR, Beryllium Characterization Procedure. Biased beryllium sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition. Random beryllium sample locations were computer generated.

All PDS beryllium laboratory results from Tent 15 (Barn Tent) were less than the investigative limit of $0.1 \,\mu\text{g}/100\text{cm}^2$. PDS beryllium laboratory sample data and location maps are contained in Attachment D, Chemical Data Summaries and Sample Maps.

4.3 RCRA/CERCLA Constituents [including Metals, Volatile Organic Compounds (VOCs) and Semi Volatile Organic Compounds (SVOCs)]

ton.

The RCRA unit in Tent 15 was closed in a previous closure action (03-RF-01458) and the closure summary was approved by CDPHE on November 8, 2004, except for the asphalt pad. Since the asphalt pad is the RCRA secondary containment for the 750 Pad and the pad has not undergone RCRA closure yet, the Tent 15 pad will be managed as hazardous waste. Since the sludge mixed in the mixing drums was hazardous waste, the sludge mixing drums are equipment that will be removed and managed as LLMW during the demolition of the tent. The tent may have contained some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, and lead-acid batteries. However, these items have been removed and are being managed in accordance with the Colorado Hazardous Waste Act. The Tent 15 structure will be removed and managed as sanitary waste. The asphalt pad will be removed and managed as hazardous waste.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR for the Tent 15, interviews, facility walkdowns and a review of historical WSRIC processes, the facility did not have a history of PCB use or storage. The structure may have contained PCB fluorescent light ballast, however, all PCB ballast have been removed from the structure. Consequently, PCB sampling and analysis was not conducted as part of this PDS and will not impact decontamination and decommissioning activities.

5 PHYSICAL HAZARDS

Physical hazards associated with Tent 15 consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Tent 15, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Tent 15 will generate sanitary and hazardous wastes. Estimated waste types and waste volumes are presented below. PCB ballast and hazardous waste items have been removed and managed pursuant to Site PCB and waste management procedures. The sludge mixing drums will be managed as LLMW during the demolition of the tent and appropriate controls will be incorporated into the demolition work packages to control these hazards during demolition.

	WASTE TYPES AND VOLUME ESTIMATES									
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)			
Tent 15 (Barn Tent)							Tent panels & misc. debris – 1,000			
	0	0	2,500	0	0	0	LLMW sludge mixing equipment - 500			
Asphalt Pad	0	0	0	0	0	0	Hazardous waste- 5,000			

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Tent 15 is classified as RFCA Type 2 structures pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) due the hazardous waste asphalt pad underneath the tent. Tent 15 possess no radiological, asbestos or beryllium contamination in excess of the PDSP unrestricted release criteria. PCB ballast and hazardous waste items have been removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations.

The PDS for Tent 15 was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. The asphalt pad beneath the tent was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process and meets the unrestricted release criteria. Tent 15 (Barn Tent) can be demolished and the waste managed as sanitary waste. The asphalt pad will be managed as hazardous waste. The sludge mixing drums will be managed as LLMW during the demolition of the tent and appropriate controls will be incorporated into the demolition work packages to control these hazards during demolition. Environmental media beneath and surrounding the facility will be addressed at a future date in accordance with the Soil Disturbance Permit process and in compliance with RFCA. To ensure Tent 15 remains free of contamination and that PDS data remain valid, isolation controls have been established and the facility posted accordingly.

9 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.

DOE Order 5400.5, "Radiation Protection of the Public and the Environment."

DOE Order 414.1A, "Quality Assurance."

EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.

K-H, 1999. Decommissioning Program Plan, June 21, 1999.

MAN-131-QAPM, Kaiser-Hill Team Quality Assurance Program, Rev. 1, November 1, 2001.

MAN-076-FDPM, Facility Disposition Program Manual, Rev. 3, January 1, 2002.

MAN-077-DDCP, Decontamination and Decommissioning Characterization Protocol, Rev. 4, July 15, 2002.

MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities, Rev. 1, July 15, 2002.

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure, Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures, Rev. 1, May 22, 2001.

PRO-477-RSP-16.03, Radiological Samples of Building Media, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, Radiological Survey/Sample Data Analysis for Final Status Survey, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, Radiological Survey/Sample Quality Control for Final Status Survey, Rev. 1, May 22, 2001.

PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999.

PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999.

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

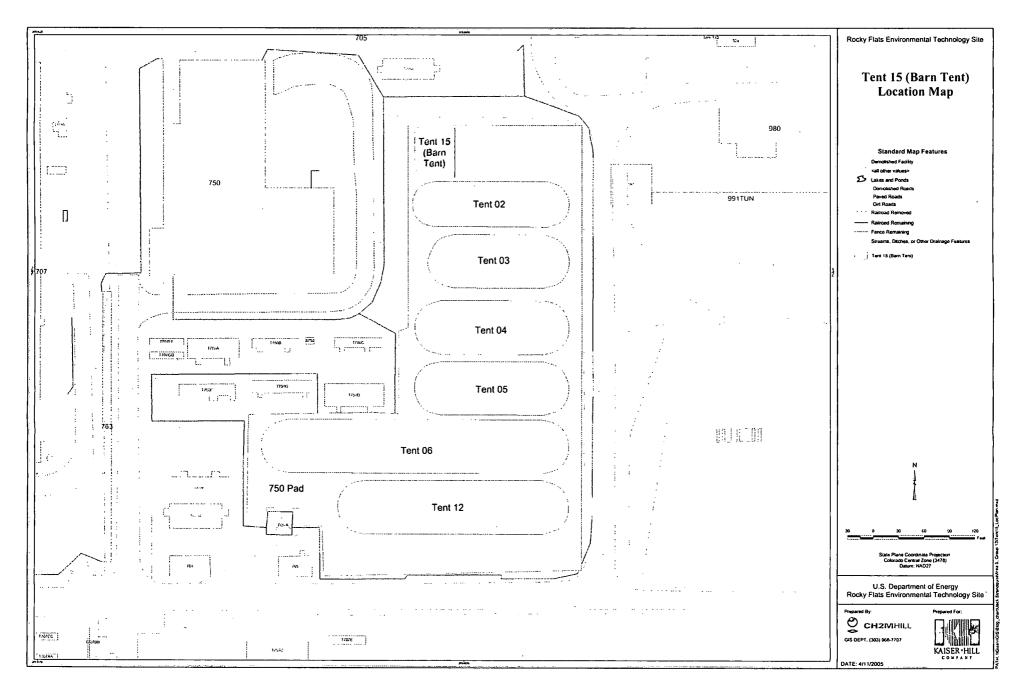
RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999

RFETS, Historical Site Assessment Report for Area 5-Group 13, dated December 2002.

ATTACHMENT A

Facility Location Map



ATTACHMENT B

Historical Site Assessment Report

Facility ID: (AREA 5 - GROUP 13) Buildings S750, 750 Pad, Tent 02, Tent 03, Tent 04, Tent 05, Tent 06, and Tent 12, and Tent 15.

Anticipated Facility Type (1, 2, or 3): Buildings S750, 750 Pad, Tent 02, Tent 03, Tent 04, Tent 05, Tent 06, Tent 12, and Tent 15 (Barn Tent) are anticipated Type 2 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with: D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building S750

Building S750 is a 48 square-foot skid mounted portable shed acquired in the late 1980s or early 1990s. The shed has aluminum siding and an aluminum roof, the floor is wood.

Building S750 has the following utilities: electric.

The 750 Pad and associated tents (Tents 02, 03, 04, 05, 06, and 12)

The 750 Pad is approximately 100, 000 square-foot, fenced and bermed, asphalt pad that was built in 1987. The 750 Pad is estimated to be 4-inches thick and is sloped to control runoff. In 1990 six large tents (Tents 02, 03, 04, 05, 06, and 12) were added to the pad to enclose the Pondcrete and saltcrete waste management activities. In 2002 tent T-750 SPR was constructed to house the sludge stabilization equipment. The tents were constructed with fabric panel stretched across an aluminum frame and used steel anchored pins to mount the tents to the pad. The pad has installed piping for transferring the pond sludge from the storage tents to T750SPR for stabilization activities.

The 750 pad has the following utilities: electric and fire protection is provided by randomly placed fire extinguishers.

Tent 2, 3, 4, 5, 6, 12, and 15

Tents 2, 3, 4, 5, 6, and 12 were constructed in approximately 1990 as a temporary storage facility for the storage and solidification of Pondcrete and Saltcrete. Tent 15 (Barn Tent) was constructed in 2002 to house pond sludge stabilization equipment. These tents are constructed with arched aluminum frames covered with polyester fabric. Tent 2 and 12 have a second layer of fabric to increase durability. The arched frames are anchored to the asphalt pad. Each tent has a containment berm around perimeter of the interior of each tent. Tent 5 houses a Perma-Con unit and a drum crusher.

Each tent is equipped with one or more vehicle access ways, metal access doors and 12-in-diameter wind turbine style ventilators. Tent 5 has a Perma-Con used to sample and repackage waste containers. The dimension of each tent is as follows; Tent 2 - 50 ft. wide by 180 ft. long by 24 ft. high; Tent 3 - 60 ft. wide by 176 ft. long by 24 ft. high; Tent 4 - 60 ft. wide by 180 ft. long by 24 ft. high; Tent 5 - 60 ft. wide by 180 ft. long by 24 ft. high; Tent 6 - 60 ft. wide by 360 ft. long by 24 ft. high; Tent 12 - 60 ft. wide by 280 ft. long by 24 ft. high; and Tent 15 - 60 ft. wide by 80 ft. long by 24 ft. high.

Each Tent has the following utilities: electric and fire protection is provided by randomly placed fire extinguishers.

Historical Operations

Building S750

Building S750 is a shed that was installed in the late 1990s. This shed has primarily been used as a storage shed for non-hazardous and non-radiological operation such as the site housekeeping services, food service organization and site maintenance organization. There is no history of any radiological or Hazardous operations.

The 750 pad and Tents 2, 3, 4, 5, 6, 12, and 15

The 750 pad is a large asphalt-paved area located east of Building 750. The 750 Pad and the associated tents (Tents 2, 3, 4, 5, 6, 12, and 15) are used to store LLW, LLW-Mixed, and hazardous waste. Tents 2 and 12 can be used to store TRU and TRU-Mixed waste. Waste is stored in Tri-wall boxes, plywood crates, corrugated boxes, metal crates, and pond sludge storage tanks. Tent 5 has a Perma-Con used to repackage and samples waste, and a drum crusher. Tent 15 was constructed in 2002 and houses the pond sludge stabilization equipment. A piping system has been installed to move the pond sludge from the tents 3, 4, and 5 to Tent 15 for stabilization. The 750 Pad and the associated tents primarily store Pondcrete, Saltcrete, pond sludge, investigative derived waste and to a lesser extent process generated waste from various operation inside the Protected area. See the 750 Pad WSRIC and Safety Analysis Report for additional information. There have been several small releases to the 750 Pad. Additional release information can be found in IHH, PAC, and UBC section below.

Tent 5 holds the Perma-Con unit used to repackage and sample waste containers and the drum-crushing unit. A second Perma-con is being built in Tent 5 to assist in the waste repackaging and sampling activities. Tent 3, 4, and 6 are primarily used to house Pondcrete storage tanks and Tents 2, 6, and 12 are primarily used to store waste drums and crates.

The 750 pad and associated tents have the following RCRA units:

- 1) RCRA Unit 750-1, which addresses container storage, and will be closed in accordance with RCRA Part B Permit No. CO 97-05-30-01.
- 2) RCRA Unit 750.2, which addresses the Pondcrete storage, tanks, and will be closed in accordance with RCRA Part B Permit No. CO-97-05-30-01.
- 3) RCRA Unit 750.3 that addresses sludge de-watering and stabilization processes. The sludge de-watering equipment has been removed and RCRA Closure is in progress. The stabilization process is still active. Closure will be performed in accordance with RCRA Part B Permit No. CO-97-05-30-01.

Current Operational Status

Buildings S750, the 750 Pad and the associated tents are all operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

None of the facilities addressed in this HSA have an asbestos posting.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

The 750 pad and Tents 2, 3, 4, 5, 6, 12 and the Perma-Con in Tent 5 are all on the RFETS list of Historic and Present Beryllium Areas. Tent 15 was constructed in 2002 and has no current Data.

Summarize any recent Be sampling results:

See Industrial Hygiene group has a list of the most recent Be samples collected for the facilities addressed in this HSA.

Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Based on the age of some of the facilities addressed in this HSA, lead in paint should not be a concern. No processes containing lead were conducted in these facilities.

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

Building S750 has no history of Hazardous operations. The 750 Pad and the Associated tents where used to Store LLW, LLW-Mixed, TRU, TRU-Mixed, and hazardous waste streams. See the Historical Operation section above for a more detailer description of the activities which occurred on the 750 Pad. See the 750 Pad WSRIC for a more detailer description of the waste streams handled on the 750 Pad. See the IHSS, PAC, and UBC section below for release information.

Describe any potential, likely, or known spill locations (and sources, if any):

The 750 Pad and the associated tents have had several small releases, some of these releases are documented in PAC 700-214, "750 Pad Pondcrete and Saltcrete Storage, Unit 25".

Describe methods in which spills were mitigated, if any:

Spills were cleaned by sweeping, washing, wiping or scooping.

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

No PCB containing process where housed in any of the facilities addressed in this HSA. No process equipment containing PCBs were located in any of these facilities. The 750 Pad (and the associated tents) were never used a permitted TSCA waste storage area. Based on the age of construction of some of these facilities, PCBs in paint should not be a concern.

Describe any potential, likely, or known spill locations (and sources, if any):

No PCB spills occurred in any of the Facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No PCB spills occurred in any of the Facilities addressed in this HSA.

Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

The 750 Pad (including Tents 2, 3, 4, 5, 6, 12, and 15), have radiological postings, The 750 Pad, and the associated Tents are permitted LLW, LLWN TRU and TRUM waste storage units. Waste stored on the 750 Pad is primarily Pondcrete, and Saltcrete. See the 750 Pad WSRIC for more information on the waste stored on the 750 Pad. See the Historical Operations section above for a more detailed listing of the operations which occurred in the facilities addressed in this HSA.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

The 750 Pad and the associated tents have had several small releases, some of which are documented in the IHSS, PAC, and UBC section below.

Describe methods in which spills were mitigated, fany:

Spills were cleaned by sweeping, washing, wiping or scooping.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

Isotopes of concern include uranium and plutonium.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

The 750 Pad and Tents 2, 3, 4, 5, 6, 12, and 15 are located on the following IHSSs, PACs, or UBCs. See individual IHSS, PAC, or UBC report for additional information.

- 1) PAC 700-214, "750 Pad Pondcrete and Saltcrete Storage, Unit 25", Active.
- 2) IHSS 192 "Seep Area Near OU-2 Influent", NFA, 1999.

Building S750 is not associated with any IHSSs, PACs, or UBCs.

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. The WSRIC for those buildings with a WSRIC. In addition, a facility walkdown and interviews were performed.

Waste V	Volume Estimates	and	Materia	l Types
,				

				Corrugated			
	Concrete	Wood	Metal	Sheet Metal	Wall Board	ACM	Other Waste
Facility	(cu ft)	(cu ft)	(cu ft)	(cu ft)	(cu ft)	(cu ft)	(cu ft)
S750	0	50	50	- 50	0	TBD	N/A
750 Pad	0	0	0	0	0	TBD	Asphalt 50,000
Tent 2	0	0	2,000	0	0	TBD	Fabric- 1,000
Tent 3	0	0	2,000	0	0	TBD	Fabric- 1,000
Tent 4	0	0	2,000	0	0	TBD	Fabric- 1,000
Tent 5	0	0	2,000	0 .	0	TBD	Fabric- 1,000
Tent 6	0	0	5,000	0	0	TBD	Fabric- 2,000
Tent 12	0	0	3,100	0	0	TBD	Fabric- 1,000
Tent 15	0	0.	2,500	0	0	TBD	Fabric- 1,000

Further Actions

Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

Note:
This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package
preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to
review additional documentation and perform additional interviews. Information contained in this HSA only represents a
"snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological
characterization package preparations, which may conflict with this report. However, this report will not be amended,
and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By:	Doug Bryant_	/	/s/	/	December 2002	
	Name		Signature		Date	

ATTACHMENT C

Radiological Data Summaries And Survey Maps

Survey Area: 5

Survey Unit: 750T15

Building: TENT 15

Description: Building 750 Pad, Tent 15, Interior and Exterior

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 10

Nbr QC Required: 2

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 10

Nbr QC Performed: 2

Alpha

Maximum:

59.9 dpm/100cm²

Minimum:

2.5 dpm/100cm²

Mean:

30.9 dpm/100cm²

Standard Deviation:

QC Maximum:

33.1 dpm/100cm²

QC Minimum:

16.4 dpm/100cm²

QC Mean:

24.8 dpm/100cm²

Transuranic DCGLw:

100.0 dpm/100cm²

Transuranic DCGLEMC:

300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 10

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 10

Alpha

Maximum:

2.1 dpm/100cm²

Minimum:

-0.9 dpm/100cm²

Mean:

0.1 dpm/100cm²

Standard Deviation:

1.1

Transuranic DCGLw:

20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0

Nbr Biased Required: 0

Nbr Random Collected: 0

Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

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Survey Area: 5

Survey Unit: 750T15

Building: TENT: 15

Description: Building 750 Pad, Tent 15, Interior and Exterior

Instrument Data Sheet

Inst/RCT RCT A		Analysis	Instr	Instru	Instru Probe		Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey
Number	r ID	Date	Model	S/N	Type 🦠	Due Dt	Alpha	Beta	Alpha	Beta	Туре
1	515538	03/31/05	Electra	673	AP-6	07/24/05	0.173	NA	300.0	NA	S
2	511390	03/31/05	Electra	3109	DP-6	06/13/05	0.215	NA	300.0	NA	S
3	511390	03/31/05	Electra	3254	DP-6	07/04/05	0.225	NA	48.0	NA	T/S
4	511390	04/04/05	Electra	2352	DP-6	06/09/05	0.221	NA	48.0	NA	T/S
5	511390	04/04/05	Electra	3370	DP-6	07/27/05	0.213	NA	48.0	NA	T/S
6	515538	04/06/05	Electra	767	NA	08/03/05	0.330	ŅA	10.0	NĄ	R
7	515538	04/07/05	Electra	1379	DP-6	05/09/05	0.222	NA	48.0	NA	Q

T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, 1 = Investigation Survey Types:

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Survey Area: 5

Survey Unit: 750T15

Building: TENT 15

Description: Building 750 Pad, Tent 15, Interior and Exterior

Comments Sheet

General N/A

Comments:

TSA For instruments that were used for both TSAs and scans (T/S) on the Instrument Data Sheet, The TSA A-Priori MDA is 48.0 and the

Comments: scan A-Priori MDA is 300.0.

RSA N/A

Comments:

Media N/A Comments:

Printed On: 05/03/05 06:39

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Description: Building 750 Pad, Tent 15, Interior and Exterior

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)		
750T15PRP-N001	6	-0.9	N/A	N/A	
750T15PRP-N002	6	-0.9	N/A	N/A	
750T15PRP-N003	6	2.1	N/A	N/A	
750T15PRP-N004	6	0.6	N/A	N/A	
750T15PRP-N005	6	-0.9	N/A	N/A	
750T15PRP-N006	6	0.6	N/A	N/A	
750T15PRP-N007	6	0.6	N/A	N/A	
750T15PRP-N008	6	0.6	N/A	N/A	
750T15PRP-N009	6	-0.9	N/A	N/A	
750T15PRP-N010	6	-0.9	N/A	N/A	
750T15PRP-N011	6	-0.9	N/A	N/A	
750T15PRP-N012	6	-0.9	N/A	N/A	
750T15PRP-N013	6	2.1	N/A	N/A	
750T15PRP-N014	6	-0.9	N/A	N/A	
750T15PRP-N015	6	0.6	N/A	N/A	

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Description: Building 750 Pad, Tent 15, Interior and Exterior

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm ²)	
750T15PBP-N016	6	2.1	N/A	N/A
750T15PBP-N017	6	-0.9	N/A	N/A
750T15PBP-N018	6	-0.9	N/A	N/A
750T15PBP-N019	6	-0.9	N/A	N/A
750T15PBP-N020	6	-0.9	N/A	N/A
750T15PBP-N021	. 6	0.6	N/A	N/A
750T15PBP-N022	6	0.6	N/A	N/A
750T15PBP-N023	6	0.6	N/A	N/A
750T15PBP-N024	6	0.6	N/A	.N/A
750T15PBP-N025	6	0.6	N/A	N/A

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Description: Building 750 Pad, Tent 15, Interior and Exterior

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
750T15PRP-N001	4	19.8	N/A	N/A
750T15PRP-N002	5	39.7	N/A	N/A
750T15PRP-N003	4	30.2	N/A	N/A
750T15QRP-N003	7	16.4	N/A	N/A
750T15PRP-N004	5	41.2	N/A	N/A
750T15PRP-N005	4	39.2	N/A	N/A
750T15PRP-N006	5	35.0	N/A	N/A
750T15PRP-N007	4	39.2	N/A	N/A
750T15PRP-N008	5	58.5	N/A	N/A
750T15PRP-N009	4	18.4	N/A	N/A
750T15PRP-N010	5	17.7	N/A	N/A
750T15PRP-N011	4	21.1	N/A	N/A
750T15PRP-N012	5	13.0	N/A	N/A
750T15PRP-N013	4	48.3	N/A	N/A
750T15PRP-N014	5	59.9	N/A	N/A
750T15QRP-N014	7	33.1	N/A	N/A
750T15PRP-N015	4	30.2	N/A	N/A

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Description: Building 750 Pad, Tent 15, Interior and Exterior

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
750T15PBP-N016	5	2.5	N/A	N/A
750T15PBP-N017	4	26.0	N/A	N/A
750T15PBP-N018	5	49.4	N/A	N/A
750T15PBP-N019	4	7.9	N/A	N/A
750T15PBP-N020	5 .	42.9	N/A	N/A
750T15PBP-N021	4	11.1	N/A	N/A
750T15PBP-N022	3	34.2	N/A	N/A
750T15PBP-N023	3	31.1	N/A	N/A
750T15PBP-N024	3	40.0	N/A	N/A
750T15PBP-N025	3	15.1	N/A	N/A

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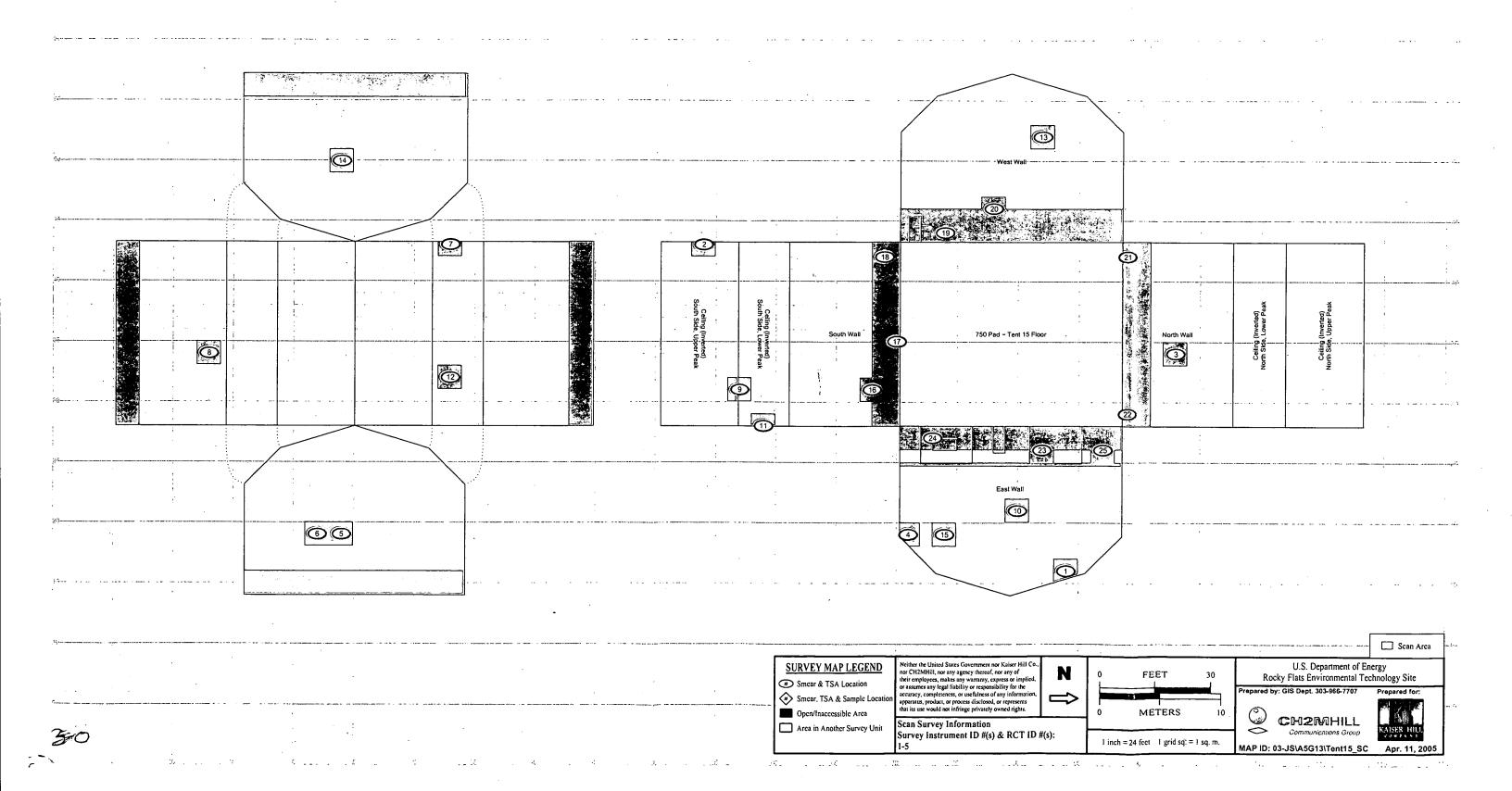
RLC/PDS FOR TENT 15 (BARN TENT)

Survey Area: 5 Survey Unit: 750T15
Building: 750 Pad (Tent 15)
Survey Unit Description: Tent 15 Interior & Exterior
Total Area: 2,108 sq. m. Total Fl

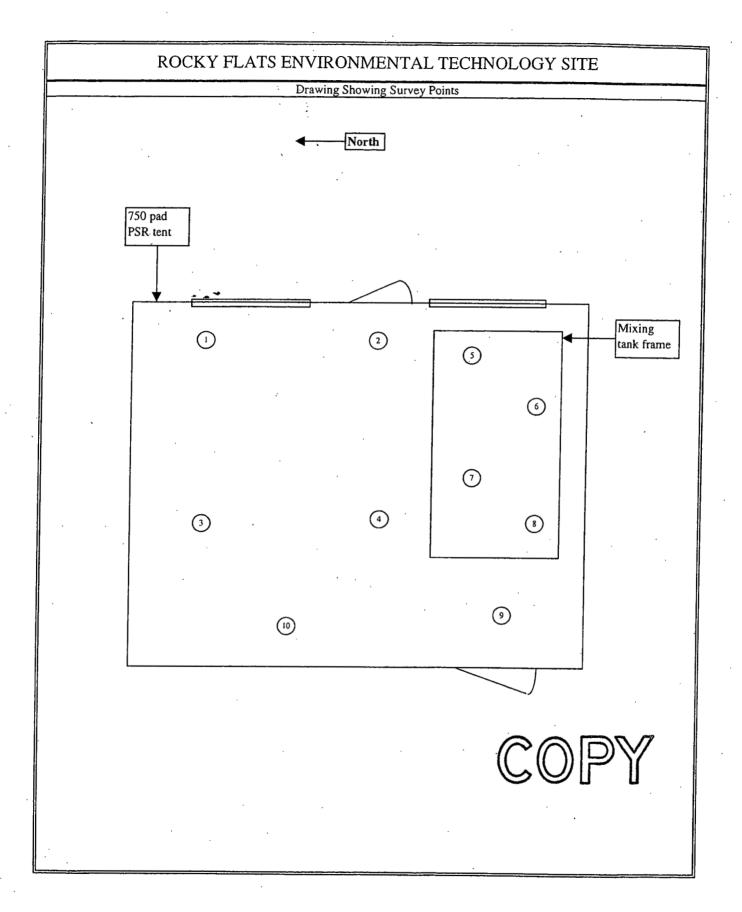
Classification: 3

Total Floor Area: 279 sq. m.

PAGE 1 OF 1



Mfg Model Serial # Cal Due Bkg Efficienc MDA Mfg.	SAC 70	ne Mfg.	*		Surve	ev Tracking	r# N/A								
Model Serial # Cal Due Bkg Efficience	SAC 70		NIE Electro Mfc	INSTRUMENT DATA						Survey Tracking # N/A					
Serial # Cal Due Bkg Efficie <u>nc</u> MDA	76	/ Model				Survey Type: Contamination (fixed and removable)									
Cal Due Bkg Efficience MDA		<u>-4</u> IVIUUCI	AP-6 Model	DP-6	Build	ing: <u>75</u> 0) pad	···							
Bkg Efficie <u>nd</u> MDA	8/3	57 Serial #	673 Serial #	3109	Locat	ion: Flo	or inside	T-750-PSR	tent (mixin	g barn)					
Efficience MDA		/05 Cal Due	7/24/05 Cal Due	6/13/05	Purpo	se: Pre	-demoliti	on survey o	f asphalt pa	d					
MDA _	0.2 с	pmα Bkg	1.0 cpmα Bkg	4.0 cpmα		,				-					
MDA _			17.30 % Efficience		RWP	#: N/A	•								
		$\frac{1}{9\lambda}$		55 dpmα	1				•						
Лfg.		Reni		.,	Date:	. 3/	31/05	Tim	e: 1	600					
	N/A	Mfg.	N/A Mfg.	N/A					1 +						
Model	N/A		N/A Model	N/A	RCT:	S. Vo	orhies	/>//a	orhian						
Serial #	N/		N/A Serial #	N/A	1 1			7 200	- 0.0-0	•					
Cal Due					1	Print	name	Sig	nature						
	N/A		,	N/A	DCT.	C. Ke	uhlan	nt	10.						
3kg	N/A c		N/A cpmβ Bkg	N/A cpmβ	RCT:			1 Jan	my !						
Efficienc			N/A % Efficiency		ł	Print i	name	Sigi	nature						
1DA		omβ MDA	N/A dpmβ MDA	N/A dpmβ											
Commer			is plutonium. 100 % sc		pad be	neath tent v	vas perfor	med with no	o contamina	tion					
	four	nd above the ML	OC listed above for the	AP-6.					NA /T						
			- · · · · ·	٠,			((1	')) <u> </u> _	<i>y</i> Y /_						
	. —					······································	M I								
			CTT	DVEV DE	TIT TO	·			<u> </u>	-					
			<u>50</u> .	RVEY RES	OLIS	2		•							
					,	ALPHA			BETA						
		LO	CATION	S	wipe -	Direct	Wipe	Swipe	Direct	Wipe					
#			0.1.1011		/100cm2	dpm/100cm2	dpm/wipe	dpm/100cm2	dpm/100cm2	dpm/wip					
1		On a	sphalt pad		<20	<55	N/A	N/A	N/A	N/A					
2			sphalt pad		<20	<55	N/A	N/A	N/A	N/A					
3		On a	sphalt pad		<20	<55	N/A	N/A	N/A	N/A					
4		On a	sphalt pad	· , · «	<20	<55,	N/A	N/A	N/A	N/A					
5			beneath mixing tanks		20	<55	N/A	N/A	N/A	N/A					
6			beneath mixing tanks		20	<55	N/A	N/A	N/A	N/A					
7			beneath mixing tanks		20	<55	N/A	N/A	N/A	N/A					
8			beneath mixing tanks		20	<55	N/A	N/A	N/A	N/A					
9 10			sphalt pad sphalt pad		20	<55 <55	N/A	N/A	N/A	N/A					
N/A		On a	Sphait pad N/A		I/A	<33 N/A	N/A N/A	N/A N/A	N/A	N/A					
N/A	 -		N/A		I/A	N/A	N/A	N/A N/A	N/A N/A	N/A N/A					
N/A			N/A		I/A	N/A	N/A	N/A N/A	N/A N/A	N/A					
N/A			N/A		//A	N/A	N/A	N/A	N/A	N/A					
N/A			N/A		I/A	N/A	N/A	N/A	N/A	N/A					
N/A			N/A		I/A	N/A	N/A	N/A	N/A	N/A					
N/A			N/A		1/A	N/A	N/A	N/A	N/A	N/A					
N/A			N/A		l/A	N/A	N/A	N/A	N/A	N/A					
N/A			N/A		l/A	N/A	N/A	N/A	N/A	N/A					
N/A			N/A	l N	/A	N/A	N/A	N/A	N/A	N/A					
,		1 1					2	1 1							
Date Res	viewed:	4/11/05	RS Supervision:	G. S. Tr	eadwell	1.	Δl.	. 1. 11	(/						



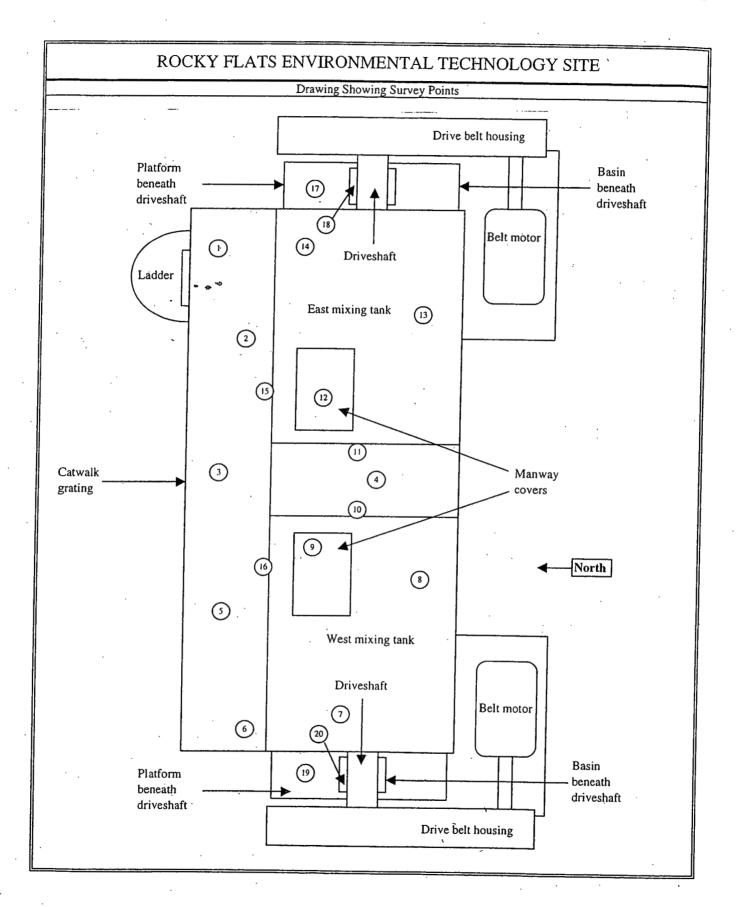


	. 1	NSTRUM	IENT DAT	CA.		Survey T	racking # N/A	\			
Mfg.	Eberline	_Mfg	Eberline	Mfg. 1	NE Electra	Survey T	ype: Conta	minatio	n (fixed and re	emov	able)
Model	SAC-4	_Model _	SAC-4	Model	DP-6	Building:	750 pad		-		
Serial #	767	Serial #	N/A	Serial #	2352	Location:	Inside T-7:	50-PSR	tent (mixing b	oarn)	
Cal Due	8/3/05	Cal Due	N/A	Cal Due	6/9/05	Purpose:	External m	ixing ta	nks		
Bkg	0.2 cpmα	Bkg	N/A cpmα	Bkg	4.0 cpmα						-
Efficiency	33.00 %	Efficiency	33.00 %	Efficiency	22.10 %	RWP #:	N/A				
MDA	20 dpmα	MDA	20 dpmα	MDA	53 dpmα]					
						Date:	4/4/05		Time:	15	00
Mfg.	N/A	Mfg.	N/A	MfgN	VE Electra			. <	n 1.		
Model _	N/A	Model _	N/A	Model _	DP-6	RCT:	S. Voorhies	_/_	2/80 Chiex	<u>/</u> د	
Serial #	N/A	Serial #	N/A	Serial #	2352		Print name		Signature		
Cal Due	N/A	Cal Due	N/A	Cal Due	6/9/05			,	1		
Bkg	N/A cpmβ	. Ékg	N/A cpmβ	Bkg	N/A cpmβ	RCT:	N/A	/	N/A	_ /	N/A
Efficiency	N/A %	Efficiency	N/A %	Efficiency	N/A %	,	Print name		Signature		Emp.
MDA	N/A dpmβ	MDA	N/A dpinß	MDA _	N/A dpmβ						

SURVEY RESULTS

			<u>ALPHA</u>			BETA			
	LOCATION	Swipe	Direct	Wipe	Swipe	Direct	Wipe		
#		dpm/100cm2	dpm/100cm2	dpm/wipe	dpm/100cm2	dpm/100cm2	dpm/wipe		
1	Catwalk	<20	<53	N/A	N/A	N/A	N/A		
2	Catwalk	<20	<53	N/A	N/A	N/A	N/A		
3	Catwalk	<20	<53	N/A	N/A	N/A	N/A		
4	Catwalk	<20	<53	N/A	N/A	N/A	N/A		
5	Catwalk	<20	<53	N/A	N/A	N/A	N/A		
6	Catwalk	<20	<53	N/A	N/A	N/A	N/A		
7	Top of west mixing tank	<20	<53	N/A	N/A	N/A	N/A		
8	Top of west mixing tank	<20	<53	N/A	N/A	N/A	N/A		
9	Top of manway cover	<20	<53	N/A	N/A	N/A	N/A		
10	Side of west mixing tank	<20	<53	N/A	N/A	N/A	N/A		
11	Side of east mixing tank	<20	<53	N/A	N/A	N/A	N/A		
12	Top of manway cover	<20	<53	N/A	N/A	N/A	N/A		
13	Top of east mixing tank	<20	<53	N/A	N/A	N/A	N/A		
14	Top of east mixing tank	<20	<53	N/A	N/A	N/A	N/A		
15	Side of east mixing tank	<20	<53	N/A	N/A	· N/A	N/A		
16	Side of west mixing tank	<20	<53	N/A	N/A	N/A	N/A		
17	On platform	N/A	1250	N/A	N/A	N/A	N/A		
18	Inside basin	N/A	1300	N/A	N/A	N/A	N/A		
19	On platform	N/A	330	N/A	N/A	N/A	N/A		
20	Inside basin	N/A	2960	N/A	N/A	N/A	N/A		

Date Reviewed: 4/5/05 RS Supervision: G. S. Treadwell

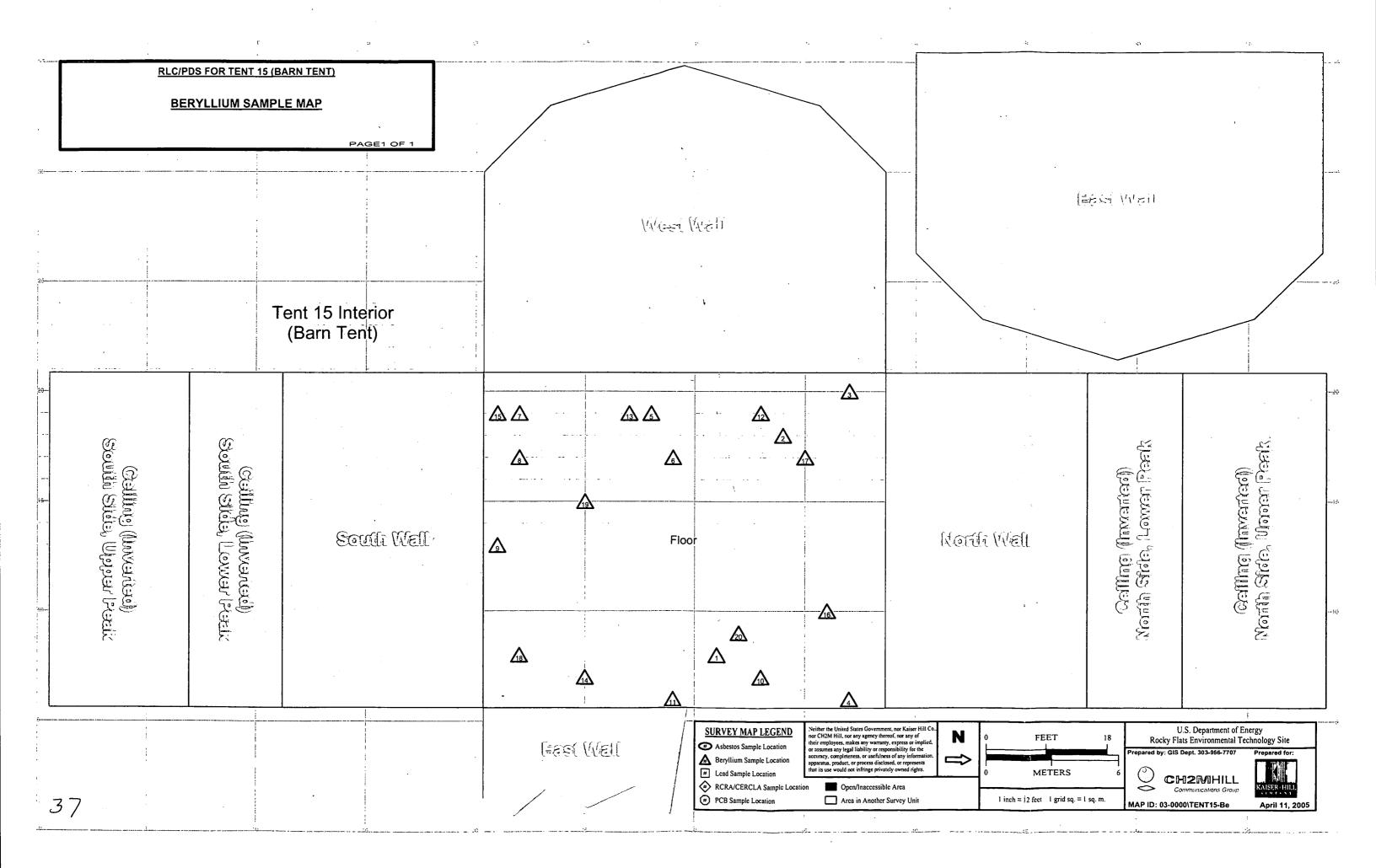


ATTACHMENT D

Chemical Data Summaries And Sample Maps

Beryllium Data Summary

Sample Number	Map Survey	Room	Sample Location	Result	
	Point Location		-	$(ug/100 \text{ cm}^2)$	
	Tent 15	(Barn Tent)	- RIN 05Z1040		
750-04042005-00-001	1	Main	asphalt pad	< 0.1	
750-04042005-00-002	2	Main	asphalt pad	< 0.1	
750-04042005-00-003	3	Main	asphalt pad	< 0.1	
750-04042005-00-004	4	Main	tent frame	< 0.1	
750-04042005-00-005	5	Main	asphalt pad	< 0.1	
750-04042005-00-006	6	Main	asphalt pad	< 0.1	
750-04042005-00-007	7	Main	asphalt pad	< 0.1	
750-04042005-00-008	8	Main	asphalt pad	< 0.1	
750-04042005-00-009	9	Main	tent frame	< 0.1	
750-04042005-00-010	10	Main	asphalt pad	< 0.1	
750-04042005-00-011	11	Main	tent frame	< 0.1	
750-04042005-00-012	12	Main	asphalt pad	< 0.1	
750-04042005-00-013	13	Main	asphalt pad	< 0.1	
750-04042005-00-014	. 14	Main	tank frame	< 0.1	
750-04042005-00-015	15	Main	asphalt pad	< 0.1	
750-04042005-00-016	16	Main	asphalt pad	< 0.1	
750-04042005-00-017	17	Main	asphalt pad	< 0.1	
750-04042005-00-018	18	Main	tank frame	< 0.1	
750-04042005-00-019	19	Main	tank frame	< 0.1	
750-04042005-00-020	20	Main	asphalt pad	< 0.1	



ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION (V&V) OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed. The radiological survey assessment is provided in Table E-1 and beryllium in Table E-2. A data completeness summary for all results is given in Table E-3.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project File. The report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Tent 15 (Barn Tent) based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. Transuranic isotope activity and Uranium and/or other naturally occurring isotope activity were evaluated against, and were less than the Transuranic DCGLw (100 dpm/100cm²) and the Uranium DCGLw (5,000 dpm/100cm²) unrestricted release limits. Except for the sludge mixing equipment, all results were below the unrestricted release limits. The sludge mixing equipment has internal radiological and hazardous waste contamination, and the exterior of the equipment has fixed contamination up to 2,960 dpm/100cm². Portions of the exterior surfaces of the mixing equipment were inaccessible during the PDS, therefore these surfaces will be surveyed as the mixing equipment is disassembled and disposed.

Kon,

Consistent with EPA's G-4 DQO process, the radiological survey design for each survey unit performed per PDS requirements was optimized by checking actual measurement results acquired during pre-demolition surveys against the model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired. Radiological survey Data Quality Objectives (DQOs) for the asphalt pad and the sludge mixing equipment were met by following Radiological Safety Practice procedures 3-PRO-165-07.02, Contamination Monitoring Requirements, and PRO-267-RSP-09.05, Radiological Characterization for Surface Contaminated Objects.

DQA SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable certainties (except for the sludge mixing equipment as described above).

ben,

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable DCGL unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable RSPs, survey units were properly designed and bounded, and instrument performance and calibration was verified as acceptable. All results meet the PDS unrestricted release criteria (except for the sludge mixing equipment as described above).

Voyl.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facilities. On this basis, Tent 15 (Barn Tent) meets the unrestricted release criteria with the confidences stated herein (except for the sludge mixing equipment as described above).

rest.



Table E-1 V&V of Radiological Results - Tent 15 (Barn Tent)

V&V CRITERIA, RADIO	DLGICAL SURVEYS	K-H RSP 16.00 : MARSSIM (NU		
	QUALITY REQUIREMENTS Parameters			
	Measure	Frequency	COMMENTS	
ACCURACY	Initial calibrations	90% <x<110%< td=""><td></td><td>Multi-point calibration through the measurement range encountered in the field; programmatic records.</td></x<110%<>		Multi-point calibration through the measurement range encountered in the field; programmatic records.
	Daily source checks	80% <x<120%< td=""><td>≥1/day</td><td>Performed daily/within range.</td></x<120%<>	≥1/day	Performed daily/within range.
	Local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	Field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Unit 750T15 (interior and exterior).	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Units of measure	dpm/100cm ²	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys Usable results vs. unusable	>95% >95%	NA	See Table D-3 for details.
SENSITIVITY	Detection limits	TSA: ≤50 dpm/100cm ² RA: ≤10 dpm/100cm ²	all measures	MDAs \leq 50% DCGL _w Note: The waste characterization surveys of the asphalt pad and the sludge mixing equipment met the MDA requirements for waste packaging and disposal, but not the PDSP requirements. However, since this material will not be unrestricted released, but rather disposed of as hazardous waste and LLMW, respectively, the stated MDAs are adequate.



RLCR/PDSR, Tent 15 (Barn Tent) Rocky Flats Environmental Technology Site

Table E-2 V&V of Beryllium Results - Tent 15 (Barn Tent)

V&V CRITERIA, CHE		DATA PACKA	AGE	
	Prep: NMAM 7300	LAB>	Johns Manville,	
BERYLLIUM	METHOD: OSHA ID-125G		Littleton, Co.	
		RIN>	RIN05Z1040	
·				COMMENTS
	REQUIREMENTS	Measure	Frequency	All results were below associated action levels.
ACCURACY	Calibrations Initial	linear calibration	≥1	
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	<u> </u>
	Blanks - lab & field	<mdl< td=""><td>≥1</td><td></td></mdl<>	≥1	
	Interference check std (ICP)	NA	NA	· ·
PRECISION	LCSD	80%<%R<120% (RPD<20%)	≥1	
	Field duplicate	all results < RL	21	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative .	NA	
COMPARABILITY	Measurement units	ug/100cm ²	NA	7
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	Detection limits	MDL of 0.00084 ug/100cm ²	all measures	



Table E-3 Data Completeness Summary - Tent 15 (Barn Tent)								
ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)			
Beryllium	Tent 15 (Barn Tent) (interior)	20 samples (17 random/3 biased)	20 random (interior)	No contamination found at any location	10CFR850; OSHA ID-125G RIN05Z1040			
		İ			No results above the action level (0.2 ug/100cm ²) or investigative level (0.1 ug/100cm ² .)			
Radiological	Survey Area 5 Survey Unit: 750T15 Tent 15 (Barn Tent) (interior and exterior)	25 α TSA (15 random/10 biased)	25 α TSA (15 random/10 biased)	No contamination at any location; all values below unrestricted release	Transuranic DCGLs used.			
		25 α Smears (15 random/10 biased)	25 α Smears (15 random/10 biased)	levels				
		2 QC TSA	2 QC TSA					
	·	10% scan of the remaining interior and exterior surfaces	10% scan of the remaining interior and exterior surfaces					